

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1-15. (Canceled)

16. (Currently Amended) A method for producing a silicon epitaxial wafer, comprising:

a hydrogen heat treatment step of arranging a susceptor capable of mounting a silicon single crystal substrate within a reactor and subjecting the silicon single crystal substrate mounted on a spot face of the susceptor to heat treatment in a hydrogen atmosphere; and

a vapor phase epitaxy step of epitaxially growing a silicon epitaxial layer after the hydrogen heat treatment step,

wherein the silicon single crystal substrate is separated from the susceptor during the hydrogen heat treatment step, and the silicon single crystal substrate is mounted on the spot face of the susceptor during the vapor phase epitaxy step.

17. (Previously Presented) The method for producing the silicon epitaxial wafer as claimed in claim 16, wherein the silicon single crystal substrate is separated from the susceptor by allowing a lift pin which vertically moves the silicon single crystal substrate relatively to the susceptor to support the silicon single crystal substrate.

18. (Previously Presented) The method for producing the silicon epitaxial wafer as claimed in claim 16, wherein the hydrogen heat treatment step is performed at a temperature lower than a vapor phase epitaxy temperature of the silicon epitaxial layer.

19. (Previously Presented) The method for producing the silicon epitaxial wafer as claimed in claim 18, wherein in the hydrogen heat treatment step, a temperature within the

reactor when the silicon single crystal substrate is separated from the susceptor is at least 900°C.

20. (Previously Presented) The method for producing the silicon epitaxial wafer as claimed in claim 16, wherein in the hydrogen heat treatment step, a temperature within the reactor when the silicon single crystal substrate is separated from the susceptor is at least 900°C.

21. (Previously Presented) The method for producing the silicon epitaxial wafer as claimed in claim 16, further comprising a cleaning step of cleaning the silicon single crystal substrate before the hydrogen heat treatment step,

wherein the cleaning step has natural oxide film removal cleaning for removing a natural oxide film formed at least on a rear main surface of the silicon single crystal substrate, and the natural oxide film removal cleaning is performed as final cleaning of the rear main surface.

22. (Previously Presented) The method for producing the silicon epitaxial wafer as claimed in claim 21, wherein in the natural oxide film removal cleaning, the natural oxide film is cleaned and removed using hydrofluoric acid.

23. (Previously Presented) The method for producing the silicon epitaxial wafer as claimed in claim 22, wherein the cleaning step has front main surface oxide film formation cleaning for forming an oxide film on a front main surface of the silicon single crystal substrate, and the front main surface oxide film formation cleaning is performed as final cleaning of the front main surface.

24. (Previously Presented) The method for producing the silicon epitaxial wafer as claimed in claim 23, wherein a time for the silicon single crystal substrate to be stored in air during the period that the substrate is fed into the reactor after the final cleaning is set within 3 days.

25. (Previously Presented) The method for producing the silicon epitaxial wafer as claimed in claim 21, wherein the cleaning step has front main surface oxide film formation cleaning for forming an oxide film on a front main surface of the silicon single crystal substrate, and the front main surface oxide film formation cleaning is performed as final cleaning of the front main surface.

26. (Previously Presented) The method for producing the silicon epitaxial wafer as claimed in claim 25, wherein a time for the silicon single crystal substrate to be stored in air during the period that the substrate is fed into the reactor after the final cleaning is set within 3 days.

27. (Previously Presented) The method for producing the silicon epitaxial wafer as claimed in claim 16, wherein the silicon single crystal wafer is a double-sided mirror silicon single crystal substrate of which both the main surfaces are subjected to a mirror polishing finish.

28. (Canceled)

29. (Previously Presented) A method for producing a silicon epitaxial wafer, comprising:

a cleaning step of cleaning a silicon single crystal substrate; and

a vapor phase epitaxy step of mounting the silicon single crystal substrate on a susceptor arranged within a reactor with a non-oxidizing atmosphere and epitaxially growing a silicon epitaxial layer after the cleaning step,

wherein in the cleaning step, front main surface oxide film formation cleaning for forming an oxide film on a front main surface of the silicon single crystal substrate is performed as final cleaning of the front main surface and rear main surface natural oxide film removal cleaning for removing a natural oxide film formed on a rear main surface of the silicon single crystal substrate is performed as final cleaning of the rear main surface.

30. (Previously Presented) The method for producing the silicon epitaxial wafer as claimed in claim 29, wherein a time for the silicon single crystal substrate to be stored in air during the period that the substrate is fed into the reactor after the final cleaning is set within 6 hours.

31. (Previously Presented) The method for producing the silicon epitaxial wafer as claimed in claim 29, wherein the silicon single crystal wafer is a double-sided mirror silicon single crystal substrate of which both the main surfaces are subjected to a mirror polishing finish.

32-36. (Canceled)